

REMARKS

Claims in the Case

Claims 1-8 were withdrawn due to the restriction requirement. Claim 19 has been canceled. Claims 9-11, 15-16, 20 and 23 have been amended. Claims 9-18 and 20-25 are currently pending.

Claim Rejections

The Office Action rejected the claims primarily based upon combinations of US 5,510,806 (Busch) and US Application 2002/0167789 (Novin). Applicant traverses these rejections and has amended the claims to clarify the claimed invention.

The Office Action relies upon Busch as teaching an imaging system with a hinged display, and Novin as teaching a friction hinge. The Office Action then combines these references to argue that the pending independent claims are obvious. Applicants disagree with these obviousness conclusions.

Independent claims 9, 15 and 23, as amended, require a friction hinge that takes advantage of two corners on the pin portion to provide a first movement range that is relatively friction-free and a second movement range that has friction caused by contact with one of these corners. These two regions of movement are determined by the first and second corners that define an open section for the pin portion. The support portion of the hinge member is then configured such that it does not contact the surface of the pin portion or the first corner until after rotation through the first movement range. Thus, two movement regions are provided – a first region where the support portion impacts the pin portion and the corner, and second region where it does not. An example embodiment including the support portion 84, the mounting portion 82, and corners 90 and 91 can be seen with respect to FIGS. 9, 10 and 12 in the current Application. Thus, as depicted, and as required by the independent claims, the planar mounting portion and planar support portion extend in a spaced relationship from each other, and the friction region is initiated when the hinge member is rotated such that the support portion impacts the first corner. In other words, the support portion of the hinge member does not contact the pin portion in the first region of movement (no friction from corner or surface of pin portion contacting the support portion) and does contact the pin portion in the second region of movement (friction from corner contacting the support portion). As described in the Application, this structure provides advantageous operational results.

Novin, in contrast, does not disclose a support portion of a friction hinge that does not contact the pin portion until after movement through a first range of relative friction-free motion and then engages a corner of the pin portion to provide fractioned movement through a second range of motion. In Novin, the rocker 44 is depicted as having first and second arcuate surfaces 50, first and second offset flats 48, and a pair of generally arcuate surfaces 51 that have bosses 55. [Novin, FIG. 3, paragraphs 0034-0036.] The surfaces 50 provide friction for angular movement through positions 16. [Novin, FIG. 1 and 3, paragraph 0038.] The bosses 55 provide an initial preloaded force for the lever arms 54. [Novin, FIG. 3, paragraph 0036.] And the flat surfaces 48 are parallel to each other and provide a gravity stop for the lever arms 54. [Novin, FIG. 3, paragraph 0037.] Significantly, as described and shown in Novin, the lever arms 54 are biased towards each other and will always tend to engage the pin. [Novin, FIG. 3, paragraphs 0036.] With respect to the flats 48, the lever arms 54 apply “an inwardly directed spring force sufficient to restrain gravity induced rotation of the display unit.” [Novin, FIG. 3, paragraphs 0036.] Thus, the flats 48 provide a stopping point where the arms 54 align with the flats 48 and apply an inward spring force thereon thereby forming a gravity stop. These flats 48, therefore, do not provide a region of movement within which a support portion of a hinge member does not contact the pin and/or a corner of the surface of that pin, as required by the claimed invention.

This difference in the hinge mechanism between Novin and the claimed inventions is also evident from the differences between the U-shaped spring levers in Novin and the generally circular hinge member of the claimed invention, which is positioned substantially around the pin portion and has support and mounting portions extending therefrom. In particular, the independent claims require a hinge member having a mounting portion and a support portion that extend from the pin portion and “an intermediate portion positioned substantially around the pin portion.” Novin does not teach or suggest such a hinge configuration. Rather, Novin utilizes U-shaped spring lever arms 54 that are biased towards each other and a mounting rivet 53 located at the base of the U. [Novin, FIG. 3, paragraph 0036.] Busch appears to utilize a pin with interlocking rings as a hinge where the screen is mounted to the rings. [Busch, FIG. 2.] Because the operation of Novin relies upon a U-shaped spring levers and the operation of Busch relies upon interlocking rings, it is not clear that these hinge systems are reasonable combinable. Rather, perhaps it is the argument of the Office Action that the hinge system of Busch would be completely replaced by the hinge system of Novin. If so, it is unclear where the motivation lies for such a modification, and, in any event, the result of such an interchange would not achieve the features of the claimed invention. In short, the U-shaped hinge member of Novin does not meet the structural limitations of the claims with regards to the hinge member.

Applicants respectfully assert that Busch and Novin, either alone or in combination the themselves or other cited references, do not teach or make obvious the limitations required by amended independent claims 9, 15 and 23. Applicant respectfully requests, therefore, withdrawal of the rejections for the pending claims.

Conclusion

In view of the foregoing, it is respectfully submitted that the pending claims are in condition for allowance. Accordingly, favorable reconsideration and Notice of Allowance are respectfully requested.

The Examiner is invited to contact the undersigned at the phone number indicated below with any questions or comments, or to otherwise facilitate expeditious and compact prosecution of the application.

Respectfully submitted,

A handwritten signature in cursive script, reading "Brian W. Peterman", written over a horizontal line.

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